

Models of Human Motion
Biomechanics studies the influence of internal and external forces on the body -anatomical position

i) Object in motion - particle motion

- a body or object in motion is represented as a single dot representing the object's C of M
- show all external forces on body (gravity & air resistance)
- Projectile Motion (baseball, football)

ii) Object in Contact with environment- stick figure model

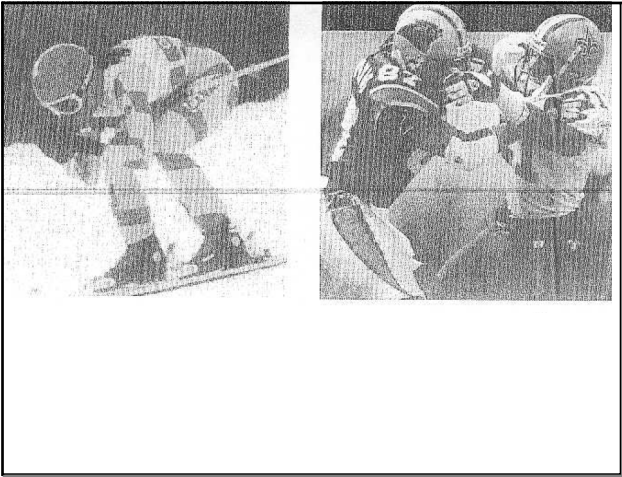
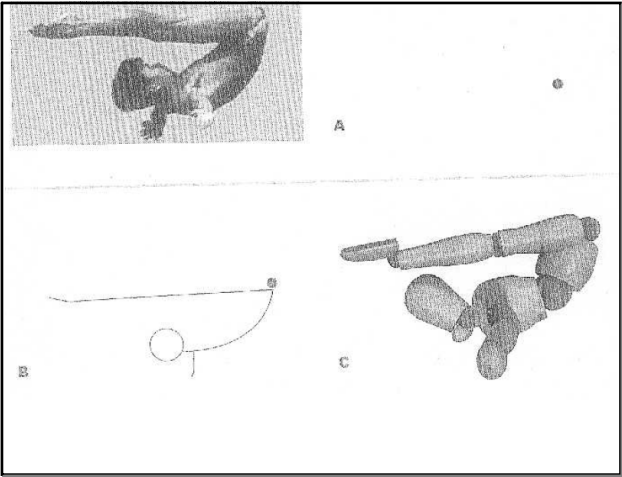
- a body in contact with its environment is represented using a stick figure and rigid lines linked together at joints- body segments
- sticks approximate body proportions
- forces (ground reaction, other objects & gravity)
- Vectors- next step

iii) Composite Drawing

- sequence of stick figures
- represents a quick reference of body actions in a skill

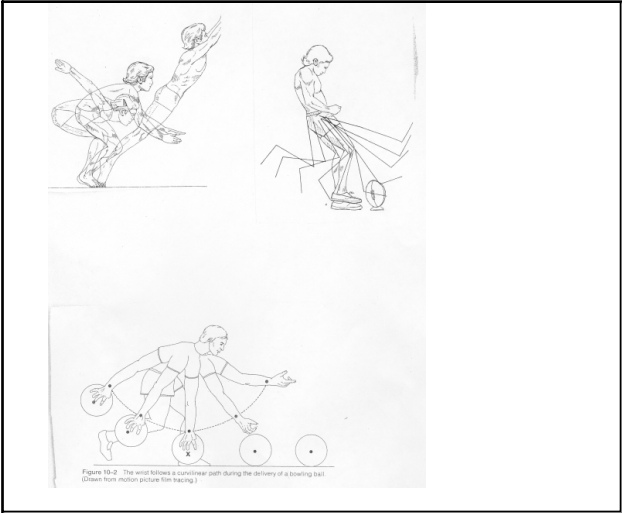
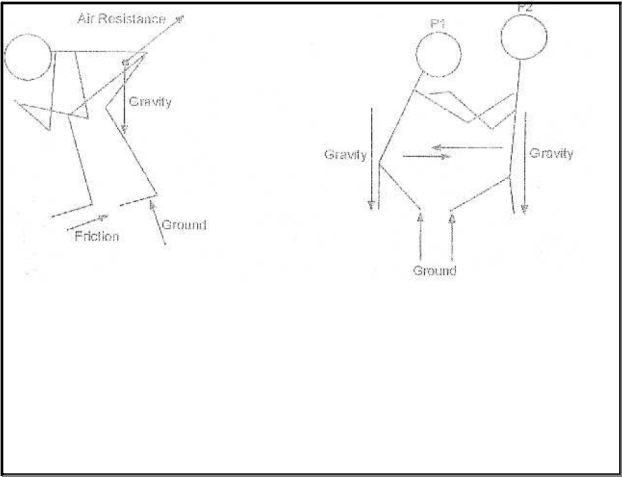
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Assignment

Draw a Stick Figure Diagram for each skill below;

- a) Three Point Stance
- b) Sprinter in the Blocks
- c) Free Throw
- d) Bump in Volleyball
- e) Butterfly Stance for a Goalie

Note -What do each have in Common?

-straight back
-bend knees ↓ C of M
-square to target (hips, shoulders)

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*Portfolio**Biomechanics*

Letter 4. h)

Include

Action as a first, second or third class lever

1 of Newton's 3 laws

2 or 3 of the principles of biomechanics

*apply to action causing injury not general sport

Nov 18-12:16 PM